Preliminary Draft Task Force Report
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Note: This is an incomplete report draft; most sections of this draft are included as placeholders.

Executive Summary

1. Introduction (<1 page)

(First draft TF background documents, charter and operation assumptions distributed at the beginning of the project)

- Background and purpose of the Task Force
- Legislative appropriation
- Task Force chartering, composition and operating assumptions and role of chartering agencies
- Organization of the report

2. Task Force Deliberations and Process (1 page)

- Brief description of task force process, e.g., meetings at various locations, open to the public, etc.
- Brief description of Task Force public involvement and outreach process and its outcomes (with details, if needed in an appendix)

3. Understanding of Concerns Associated with Area-Wide Soil Contamination (1-1½ pages)

(First draft to be drawn from TF background documents and charter, TF meeting notes, and from results of stakeholder and TF interviews conducted at the beginning of the process.)

- Reiterate historical nature of sources
- Describe that it is land use change/development raising issues
- Risks to people – discussion of the range of views and the TF deliberations on this issue
- Risks to environmentally sensitive areas
- Liability concerns associated with MTCA

4. Nature and Extent of Area-Wide Soil Contamination

What is Known and Not Known about the Location and Extent of Area-Wide Arsenic and Lead Soil Contamination

Elevated levels of arsenic and lead are present in soil in some areas of Washington State from a number of historical sources, primarily metal smelters, lead arsenate pesticides, and emissions from leaded gasoline. The precise boundaries of area-wide soil contamination are not defined; however, certain areas have a higher likelihood of elevated levels of arsenic and lead in soil, based on the locations of metal smelters or the estimated use of lead arsenate pesticides from approximately 1905 to 1947. Areas affected by smelter emissions in King, Pierce, Snohomish, and Stevens counties have a higher likelihood of elevated levels of arsenic and lead in soil based on historical emissions of metal smelters located in Tacoma, Harbor Island, Everett, Northport, and Trail, BC. Areas where apples and pears were historically grown have a higher likelihood of elevated levels of arsenic and lead in soil based on historical use of lead arsenate pesticides. Chelan, Spokane, Yakima, and Okanogan counties have a higher likelihood than other counties for elevated levels of lead and arsenic in soil based on the higher numbers of apple and pear trees in production there between 1905 and 1947. The full extent of area-wide soil contamination from past use of leaded gasoline in Washington is not known; however, in general, land adjacent to any road constructed prior to 1995 has some likelihood of elevated levels of lead in soil from leaded gasoline. The following table describes the number of acres potentially affected by smelter emissions and historical uses of lead arsenate pesticides.

Table XX: Preliminary Estimates of Area-Wide Soil Contamination in Washington

Area-Wide Contamination Source	Estimated Land Area Affected [3]
Smelters	
Tacoma	329,600 acres [1]
Everett	8,320 acres [1] [2]
Harbor Island	640 acres [1]
Northport and Trail	150,400 acres [1] [2]
Orchard Land	187,590 acres
Roadsides	Cannot be estimated
All Area-Wide Sources	676,550 acres

[1] Extent of affected area has not been fully characterized.
[2] Based on air modeling for Everett and maps of sulfur dioxide injury to vegetation for Northport and Trail.
[3] The total area of land in Washington is 66,544 square miles, or about 42.6 million acres.

In areas affected by smelter emissions and areas where lead arsenate pesticides were applied to crops, concentrations of arsenic and lead in soil are generally higher than concentrations that occur naturally in Washington soils and higher than State soil cleanup levels established under the Model Toxics Control Act; however, concentrations are generally lower than those found at smelter operation sites and in areas where lead arsenate pesticides were mixed and formulated. Low-to-moderate elevated levels of arsenic and lead in soil that are associated with areas affected by smelter emissions and areas where lead arsenate pesticides were applied to crops are referred to as "area-wide soil contamination" to distinguish it from contamination at more traditional contaminated sites.

Concentrations of arsenic and lead in area-wide soil contamination areas are highly variable and depend on the historical use and development of individual properties. For example, soils are often mixed and redistributed during the development of a property; this disturbance tends to dilute the concentrations of arsenic and lead in soil. Because of this variability, concentrations on one property cannot reliably be used to predict concentrations on neighboring properties. Therefore, each property owner may need to conduct an individual assessment to understand the potential for elevated levels of arsenic and lead in soil at his or her property. These assessments

may involve soil sampling, or may be qualitative assessments of the likelihood for area-wide soil contamination, based on the property's location and its land-use and development history.

Recommendations for Maps and Accompanying Information

To raise awareness of the potential for area-wide soil contamination in certain locations in the State and to support assessments of individual properties, the Task Force recommends that maps and accompanying contextual information be used to describe what is known about the likely nature and extent of area-wide soil contamination in Washington State. Areas where elevated levels of arsenic and lead are more likely to be present may be mapped based on their proximity to these historical sources. The Task Force recommends two tiers of maps and accompanying information.

Tier 1: The first tier of maps and accompanying information identifies the general areas in the state where elevated levels of arsenic and lead soil contamination are more likely to be present based on historical smelter emissions and historical use of lead arsenate pesticides. This tier is designed to raise awareness in the widest possible audience about the location of area-wide soil contamination in Washington and to help users decide whether to look at the second tier of more detailed maps and informational tools for more information. The Task Force recommends that the chartering agencies use Figure [X] (see Appendix [XX]) to show the general locations of areas affected by historical smelter emissions in Washington, based on information currently available.

The Task Force considered several options for a State map of the general locations potentially affected by historical use of lead arsenate pesticides, but data were not available to develop a map of lead arsenate contamination comparable to the State smelter map. Accordingly, the Task Force recommends that the chartering agencies use a State map showing the total acreage of land potentially affected by lead arsenate pesticide use in each county (see Figure [X] in Appendix [XX]) and assist local governments that choose to develop additional tier 1 maps that use shading to show the general locations of areas potentially affected by lead arsenate contamination within individual counties, based on available land-use information (e.g., elevation and public lands). Examples of county maps that the Task Force believes would be

useful to show the general areas potentially affected by lead arsenate contamination are included in this report for Chelan, Okanogan, and Yakima counties (see Figures [X]-[XX] in Appendix [XX]). These maps were developed to reflect areas in these counties that are below 2,500 feet in elevation and are not public lands. They represent a very conservative approach to describing potentially affected areas using readily available information. The Task Force cautions readers not to interpret these maps as identifying areas that are affected. The maps simply point to areas where residents and institutions should have heightened awareness of the potential for area-wide soil contamination and should seek additional information. For other counties, similar maps may be developed using land-use information available to local planning and development offices; however, the specific sources of information available may vary widely on a county-by-county basis.

Tier 2: The second tier of maps and accompanying information is designed to help individuals refine their understanding of where area-wide soil contamination is likely to be present based on more detailed, smaller scale maps of smelter plumes and historical orchard areas, where these areas are known (see Figures [X-XX] in Appendix [XX]). When available data do not support smaller scale maps, flow charts and/or other informational tools should be available to help individuals determine whether elevated levels of arsenic and lead contamination are likely to be present based on the location and land-use history of specific properties (see lead arsenate flowchart in Appendix [XX]). Particularly in counties with the greatest number of acres potentially affected by lead arsenate, the chartering agencies should work with local governments to identify the locations of historical orchards based on land-use information potentially available from a variety of sources and, where appropriate, develop smaller scale maps of those historical orchard locations. Maps of historical orchards in Yakima county and in the Manson area near Lake Chelan are included in this report (see Appendix [XX]) as examples of the type of smaller scale maps that the Task Force believes would be useful. These maps were developed by analyzing 1947 aerial photographs to identify the locations of historical orchards, entering this information into a geographic information system (GIS) database, and overlaying the locations of the historical orchards onto aerial photographs (for Manson) or other geographic data such city and county boundaries and highways (for Yakima County).

Developing and Updating Maps

The chartering agencies and local governments should share responsibility for developing new maps of area-wide soil contamination where appropriate and for updating existing maps based on newly available information. In particular, the chartering agencies should encourage, support, and provide financial assistance to local governments for the identification of historical orchard locations and, if appropriate, for the development of smaller scale maps of areas potentially affected by lead arsenate pesticide contamination, such as the tier 1 maps of general areas potentially affected in Chelan, Okanogan, and Yakima counties and the more specific tier 2 maps of historical orchard locations in Yakima county and the Manson area near Lake Chelan. In order to use financial resources most effectively, the chartering agencies should consider first providing "seed" money to local jurisdictions to research available data sources to determine the most appropriate means of identifying historical orchard locations and developing smaller scale maps, prior to providing full funding for map development. Furthermore, the highest priority for funding should be identifying historical orchard locations in local jurisdictions that have the largest area potentially affected by past use of lead arsenate pesticide. Finally, the chartering agencies should coordinate with local governments and/or private organizations to maintain and update the maps regularly based on newly available information, preferably on an annual or biannual basis.

Information to Accompany Maps

The Task Force emphasizes the importance of including accompanying information with all the maps. The need for additional information on area-wide soil contamination is discussed in detail in the Task Force's recommendations on broad-based education and awareness building. With respect to information on the potential locations of area-wide soil contamination, information should:

- Describe the variability of the nature and distribution of area-wide soil contamination so individuals outside of areas identified on maps are not given a false sense of assurance that they cannot encounter elevated levels of arsenic and lead and individuals inside areas identified on maps are not given a false sense of concern that their properties have been found to be contaminated. Maps show a greater or lesser probability of encountering

elevated levels of arsenic and lead in soil based on proximity to historical sources. For certainty, individual property assessments are needed, as discussed above.

- Describe a methodology individuals can use to carry out additional assessments of individual properties and provide supporting materials. These materials should include, as appropriate, rules-of-thumb, flowcharts, and checklists to support qualitative assessments and guidance on collection and analysis of soil samples for quantitative assessments. The Task Force does not assume or recommend that quantitative assessments are necessary at each property potentially affected by area-wide soil contamination.

- Describe best management practices that individuals can use to limit exposure to arsenic and lead in soil, such as frequent hand washing with soap and water, maintaining adequate cover of bare soil, and other practices to limit exposure of children, gardeners, and other adults who frequently work in soil. (Best management practices are further described in the broad-based education and awareness building section below.)

- Identify organizations—such as local health jurisdictions, land-use planning offices, the National Lead Information Center, and regional offices of the Department of Ecology, the U.S. Department of Housing and Urban Development (HUD), and the Environmental Protection Agency (EPA)—and individuals that are available to answer questions and provide additional help.

The Task Force has developed a package of maps and accompanying information for the chartering agencies to consider. This includes is attached as [Appendix _____].

Recommendations for Additional Data Gathering (If Any)

[Placeholder for text on recommendations for additional data gathering (if any).]

5. Approach to Evaluating Protective Measures and Making Recommendations (2-3 pages)

(Draft text with PM subgroup; has been reviewed once by full TF.)

- Discussions leading up to Task Force map (brief description of information survey and case studies with details, if needed, in an appendix)
- Description of project map, with a focus on the key questions the Task Force identified (could use some of the existing issue statement text too, which represents the umbrella question over all the other map questions)
- Brief description of small group process
- Identification and use of land use/exposure scenarios to focus deliberations
- Decision to focus on exposures to young children as most sensitive population

6. Cross-Cutting, Foundation Recommendations

6a. Broad-Based Education and Awareness Building

Broad-based education and awareness building activities are the foundation of the Task Force's recommendations for responding to area-wide soil contamination. They support and underlay all other recommendations and are cross-referenced in the sections on responses in specific land-use scenarios, below.

Recommendations

To assist individuals and communities in their decisions about responses to area-wide soil contamination, the chartering agencies should work with and through local governments, particularly local health departments, to increase knowledge of area-wide soil contamination through a broad-based education and awareness building campaign.

Goals of Broad-Based Education and Awareness Building

The goal of broad-based education and awareness building should be to provide individuals, organizations and communities with the information and materials they need to make and act on

knowledgeable and responsible choices about responding to area-wide soil contamination. Education and awareness building materials and activities should be carefully balanced to adequately inform citizens about the area-wide soil contamination issues while, at the same time, avoid creation of unnecessary fears and other unintended consequences. In general, education and awareness building should prioritize issues associated with risks associated with exposure of children and of adults who have frequent contact with soil. The most important audiences for education and awareness building are gardeners, other adults who frequently work in soil, and people and organizations that care for or work with children, including parents, educators, healthcare providers, and childcare providers.

A "Toolbox" of Information is Needed

To support broad-based education and awareness building, the chartering agencies should develop a toolbox of information and materials to help individuals (e.g., parents) and organizations (e.g., schools) answer questions about the potential for arsenic and lead contamination at specific properties and identify actions they can use to reduce exposure to arsenic and lead. At a minimum, this toolbox should include the following.

- Materials, including maps describing where area-wide soil contamination is most likely to be found. The Task Force recommends a specific approach to mapping and other materials, discussed in detail in the Nature and Extent of Area-Wide Soil Contamination Section of this report.
- Materials including flow charts and checklists describing how to assess individual properties to determine if exposure to contaminated soil is likely, and materials providing guidance on how to collect and analyze soil samples at typically types of properties (e.g., a residential yard) to determine if elevated levels of arsenic and lead are present.
- Information on the health risks associated with exposure to low-to-moderate levels of arsenic and lead in soil, particularly the risks associated with childhood exposure, and information on how parents can obtain blood lead level screening for their children.
- Materials, such as those developed by Public Health – Seattle & King County, that encourage good personal hygiene practices and other best management practices designed to reduce exposure to arsenic and lead in soil, such as frequent hand washing with soap and water.

- Materials, such as those developed by [cite WSU pamphlet] that describe best management practices for safe gardening where soil has elevated levels of arsenic and lead.
- Materials, such as those developed by the Snohomish Health District that describe best management practices for utility and other workers who may frequently come into contact with contaminated soil through their work.
- Materials describing the range of protective measures that might be taken to respond to area-wide soil contamination to complement use of the good personal hygiene and other best management practices.
- ***[Other?]***

In addition to materials for general use, targeted materials should be developed for the following specific audiences and outreach should be conducted for these audiences.

- Parents of young children
- Childcare providers and preschool operators
- School officials and operations, maintenance and groundskeeping staff
- Park officials and operations, maintenance and groundskeeping staff
- Gardeners
- Real estate professionals
- Construction, utility and other workers who have routine contact with soil
- Healthcare providers
- Homebuilders associations
- Local planning and zoning officials
- Agricultural workers and landlords with farm unit rentals and picker camps
- ***[Other?]***

In particular, targeted materials for parents, childcare providers, healthcare providers, preschool operators, park operators, and school officials should explain the health risks associated with childhood exposure to arsenic and lead, how to qualitatively assess whether there is the potential for children to be exposed to arsenic and lead in soil, and, if potential exposures exist, how to mitigate these exposures through implementation of good personal hygiene practices, best

management practices designed to reduce the potential for exposure contaminated soil, and/or other appropriate means.

A Step-Wise Approach is Appropriate

To use resources effectively, the chartering agencies should take a step-wise approach to providing information about area-wide soil contamination, as follows.

Step 1: the chartering agencies should make basic, overview educational materials about area-wide soil contamination available to all residents. Materials should be made available in appropriate languages for the range of potentially affected communities. At a minimum, materials should be made available using the following means:

- Development and maintenance of an area-wide soil contamination website. ***[Review question – do you want to say the current TF website is an appropriate starting point for this?]***
- Distribution to libraries and other public information repositories.
- Distribution to Ecology regional and field offices, local health departments and to other locations where residents may go to seek information on environmental and health conditions.

[Review question: other means?].

Step 2: In areas where area-wide soil contamination is likely, the chartering agencies should provide routine briefings, trainings, and workshops for local health departments and other appropriate organizations to facilitate informed distribution of educational materials and ensure a solid understanding of health risks and exposure reduction measures. The chartering agencies should work with local governments and other organizations that distribute information to develop strategies designed to ensure that educational materials reach target audiences. For example, a county planning department could distribute a fact sheet on minimizing exposure to arsenic and lead in soil as part of the building permitting process.

As described in the Nature and Extent section of this report, areas potentially affected by smelter emissions and historical use of lead arsenate pesticides are identified in the maps and

accompanying information in Appendix [XX]. Areas where area-wide contamination is likely include portions of counties potentially affected by smelter emissions such as King, Pierce, Snohomish, and Stevens, and areas where apple and pear trees were grown historically, such as portions of Chelan, Okanogan, Spokane, and Yakima counties.

Step 3: where area-wide soil contamination is known to exist, the chartering agencies should provide additional outreach, education and resources as described in the specific scenario discussions below.

Monitoring and Evaluating Effectiveness

Finally, the chartering agencies should monitor and evaluate the effectiveness of education and awareness building efforts in increasing implementation of good personal hygiene practices and other best management practices to mitigate the potential for exposure to arsenic and lead in soil. Information gathered during this monitoring and evaluation should be used to improve and update education and awareness building efforts. ***[Placeholder: for additional detail on this based on effectiveness studies associated with the education efforts on the Tacoma Smelter Plume being planned for Pierce and King Counties.]***

Estimated Costs

[Placeholder for text on estimated costs.]

Implementation Considerations and Funding Recommendations

[Placeholder for text on implementation considerations and funding recommendations.]

6b. Real Estate Disclosure

[Placeholder for text on real estate disclosure (1-2 pages)]

7. Recommendations for Specific Land-Use Scenarios

In addition to the broad-based education and awareness building and real estate disclosure activities discussed above, the chartering agencies should take specific actions in different land-use scenarios. The Task Force emphasizes that these activities are meant to build upon and complement – not replace – the broad-based education and awareness building discussed above.

7a. Child-Use Areas

The Task Force is most concerned about exposure of young children to arsenic and lead in soil. Accordingly, the Task Force recommends that the chartering agencies should give special attention to child-use areas. Building upon the broad-based education and awareness building discussed above, activities in child-use areas should be focused on identifying situations where children are at risk of exposure to elevated levels of arsenic and lead in soil, and taking steps to prevent or limit such exposure.

Increasing Understanding of Where Exposure Could Occur

Where area-wide soil contamination is likely,[1] the Task Force strongly encourages school districts, parks and recreation departments, daycare operators, and other property owners/managers to carry out qualitative assessments of the potential for exposure to arsenic and lead in soil in places routinely used by children. The chartering agencies should support, encourage and assist with such assessments. ***[Review question: do you want to be more specific about how chartering agencies should encourage or assist with qualitative assessments?]***

Qualitative assessments should use easily observable features of site to identify situations when there is the greatest potential for exposure, with an emphasis on identifying situations where there is direct, daily contact with or ingestion of contaminated soil over a period of months or direct contact with particularly high concentrations of arsenic or lead. The Task Force

[1] Areas where elevated levels of lead and arsenic are likely should be determined using the information developed on the nature and extent of areas-wide soil contamination described earlier in this report, including the maps and associated information designed to assist with evaluations of individual properties.

recommends that the following checklist be used to carry out qualitative assessments.
[Placeholder to insert checklist.]

Where qualitative assessments indicate that there may be routine or acute exposure of children in areas where area-wide soil contamination is likely, the Task Force recommends that school districts, parks and recreation departments, daycare operators, and other property owners conduct soil sampling to determine if elevated levels of arsenic and lead are actually present. Soil sampling guidance is part of the "toolbox" of information discussed in the Broad-Based Education and Awareness Building Section of this report and included in Appendix _____. The chartering agencies should support, encourage, and assist local jurisdictions, other organizations, and individuals with these activities. ***[Review question: do you want to be more specific about what the chartering agencies should do?]***

<u>Implementing Best Management Practices to Minimize the Potential for Exposure</u>

The first step in taking action to minimize the potential for children to be exposed to elevated levels of arsenic and lead in soil should be implementation of best management practices. Best management practices are discussed in detail in the Broad-Based Education and Awareness Building Section of this report. In particular, for child-use areas BMPs should be focused on minimizing the potential for children to come into contact with soil by maintaining good soil cover under and around play equipment, in sports fields, and in other play areas.

The Task Force emphasizes that it is not necessary to confirm that elevated levels of arsenic and lead are present in soil before implementing BMPs. Rather, where area-wide soil contamination is likely, the Task Force strongly recommends that BMPs be implemented in child-use areas immediately.

The chartering agencies should work with local jurisdictions and other organizations, such as the Washington Association of Maintenance and Operations Administrators, to ensure that protective barriers are maintained and that BMPs continue to be implemented in child-use areas. ***[Review question: How should the agencies ensure that BMPs are implemented? For example, should local health districts or other organizations monitor whether protective barriers are***

maintained and other BMPs are followed?] Grass, for example, may not be an effective cover for contaminated soil on an athletic field or other child-use area if it is not properly maintained.

Response Actions Where Elevated Levels of Arsenic and Lead Are Found

Where soil sampling results indicate that elevated levels of arsenic or lead are present in soil at a child-use area, the chartering agencies should assist local jurisdictions, other organizations, and individuals in implementing BMPs and in selecting and implementing any additional appropriate protective measures. ***[Review questions: what criteria or factors should the agencies consider in determining whether responses in addition to BMPs are appropriate (e.g., cleanup standards, interim action criteria, other)? Do you want to recommend that certain types of protective measures are used in this case and/or suggest a hierarchy of PMs and reference the rectangle-with-a-line-through-it diagram?]***

In addition, the chartering agencies should work with school districts, park agencies, and other appropriate organizations to facilitate understanding in communities and to prioritize response actions at schools, parks and other child-use areas. In particular, parents of young children should be kept informed during all stages of the assessment and cleanup process through Parent Teacher Association meetings, school newsletters, community events, and other appropriate means. As with all the education and awareness-building materials contemplated by the Task Force, outreach activities where elevated levels of arsenic and lead are found should balance the need for accurate and complete information with the need to avoid unnecessarily frightening parents and other audiences, or creating unintended consequences or overreactions.

Special Considerations for Public Playgrounds

Children have the highest potential to be exposed to arsenic and lead in soil by coming into contact with contaminated dirt. The Task Force believes this is most likely to occur in areas which children routinely play, such as play grounds and play fields. By the nature of their use, play grounds and play fields often have spots or areas of bare dirt to which children could be exposed. Because these areas are typically publicly owned and operated, the Task Force believes there is a special responsibility to ensure that children who use these areas are protected.

The U.S. Consumer Product Safety Commission's (CPSC) "Handbook for Public Playground Safety," guidelines for maintaining children's safety in public playgrounds recommend that woodchips, mulch, sand, gravel, or shredded tires be installed and maintained to a depth of at least 5-12 inches (depending on the surfacing material selected) under playground equipment. The *Health and Safety Guide for K-12 Schools in Washington* developed by the Office of the Superintendent of Public Instruction and the Department of Health already recommends that all playground equipment at primary and secondary schools in Washington conform to CPSC's playground safety standards.

For existing play areas at public parks and schools, the Task Force strongly recommends that the CPSC surface material guidelines be fully implemented. The Task Force also recommends that a permeable geosynthetic membrane/barrier (such as landscaping fabric or weedblock) be incorporated below the surfacing material to further limit the potential for contact with soil. Furthermore, the Task Force recommends that additional efforts should be made to ensure adequate cover of bare soil in other locations where children might be exposed. ***[Review question: do you want to make more specific recommendations for other areas where children may be exposed?]***

For new play areas constructed at public schools, the Task Force recommends that conformance with CPSC surface material guidelines and placement of a permeable geosynthetic membrane/barrier (such as landscaping fabric or weedblock) below the surfacing material <u>be required</u>, unless soil sampling shows that elevated levels of arsenic and lead are not present. The Task Force acknowledges that making CPSC's surfacing standards and the additional permeable barrier a requirement for new school playgrounds in area-wide contamination areas may necessitate regulatory changes. ***[Review question: Do you want to make similar recommendations for playgrounds at public parks?]***

<u>Special Considerations for Daycare Centers and Family Home Daycare Certification</u>

Many children spend significant amounts of time in commercial or family home daycare settings. This is particularly true for children who have not yet reached school age and who may be particularly vulnerable to exposures to arsenic and lead. Where area-wide soil contamination is

likely, the chartering agencies should collaborate with the Department of Social and Health Services (DSHS), and local health districts to reach out to daycare providers to encourage them to implement the responses described above. To encourage implementation of such responses a voluntary certification program for daycare centers and family home daycares should be established. The voluntary certification program should be administered by DSHS, in conjunction with the Department of Health. Under this program, individual certifications should be timed to renew and expire in conjunction with the daycare licensing cycle (i.e., every 3 years).

The certification program should establish three tiers of recognition.

- Tier 1: These daycares certify that they have received and reviewed information prepared by the chartering agencies and/or have completed training on how to identify and minimize potential exposure using best management practices and other protective measures (possibly through the existing STARS daycare training program and/or other annual training requirements).
- Tier 2: These daycares certify that they have contacted local health districts to help them identify and take steps to minimize children's potential exposure to arsenic and lead in soil.
- Tier 3: Soils at these daycares have been tested and found not to contain elevated levels of arsenic and lead.

[Review question: Should certifications expire more/less frequently? Should the recommendation explicitly suggest that the STARS program develop a specific curriculum to educate daycare providers about lead and arsenic contamination?]

Estimated Costs

[Placeholder for text on estimated costs.]

Implementation Considerations and Funding Recommendations

[Placeholder for text on implementation considerations and funding recommendations.]

7b. Residential Areas

There are numerous residential properties within areas of area-wide soil contamination. However, as discussed in the section on Nature and Extent of Area-Wide Soil Contamination, above, the actual presence and concentrations of arsenic and lead in soil on individual properties will vary widely. Because of variable deposition patterns of arsenic and lead, land development and other activities that affect the concentrations of arsenic and lead in soil, many residential properties within areas of area-wide soil contamination may be found not to have elevated levels of arsenic and lead in soil.

The Task Force believes that activities at residential properties should be focused on supporting residents in understanding the potential for elevated levels of arsenic and lead in soil at individual properties and in taking appropriate response actions. Responses to area-wide soil contamination at residential properties should be similar to, and no more stringent than, the approach described above for child-use areas. Activities at residential properties within area-wide soil contamination areas should focus on minimizing the potential for exposure to elevated levels of arsenic and lead in soil. Particular attention should be paid to three populations: children, gardeners, and other adults who frequently work in soil.

Responses Recommended

In addition to the broad-based education and awareness building and responses in child use areas discussed above, the Task Force recommends three responses for residential properties: best management practices, soil screening/testing, and support for soil removal and replacement with clean soil.

Best Management Practices

The Task Force recommends that all residents of areas of areas-wide soil contamination follow best management practices to limit their potential for exposure to elevated levels of arsenic and lead in soil unless (1) qualitative screening indicates elevated levels of lead and arsenic in soil are unlikely to exist, or (2) quantitative soil testing shows that elevated levels of arsenic and lead

in soil are not present or have been removed or contained. Best management practices are discussed further in the Section on Broad-Based Education and Awareness Building.

Opportunities for Soil Screening/Testing.

Residents within areas of area-wide soil contamination should carry out qualitative assessments to determine the potential for their property to have elevated levels of arsenic and lead in soil and the potential for exposures to contaminated soil. When these assessments show that elevated levels of arsenic and lead and/or exposures to contaminated soil are likely, residents should consider soil sampling as well as BMPs. The chartering agencies should provide incentives and opportunities for individuals who choose to sample soils on their properties. Specifically, the chartering agencies should establish a mechanism to subsidize the costs of sampling at residential properties in area-wide soil contamination areas. For example, the chartering agencies could make XRF machines available routinely throughout the year at easily accessible locations or provide vouchers for reduced or low-cost lab analysis in area-wide soil contamination areas for residents who would like to have soil samples analyzed for lead and arsenic. ***[Placeholder for additional detail on this approach based on local government experiences with household hazardous waste collection days.]***

[Review questions: Should other incentives be provided for sampling? Should residents pay for the soil sampling analysis (using the XRF machines and/or independent lab analysis), or should the analysis costs be subsidized?]

Confidentiality and Reporting of Sampling Results: In order to protect the privacy of residents who choose to take advantage of soil sampling opportunities, data provided to the chartering agencies by residents who receive incentives/subsidies for the cost of sampling or who seek technical assistance in interpreting sampling results should be managed by the agencies in a manner that does not associate the data with specific property locations. ***[Review question: Should all data be confidential? Should the chartering agencies use data gathered from sampling in an aggregate way to update and refine the maps (or other purposes?), provided that sharing the data does not trigger the listing of individual properties under MTCA?]***

Furthermore, the chartering agencies should work with local health jurisdictions to assist property owners in the interpretation of soil testing results and in the selection of appropriate protective measures, if the results indicate that responses in addition to BMPs are appropriate. ***[Review questions: What criteria or factors should the agencies consider in determining whether responses in addition to BMPs are appropriate (e.g., cleanup standards, interim action criteria, other)? Do you want to recommend that certain types of protective measures are used in this case and/or suggest a hierarchy of PMs and reference the rectangle-with-a-line-through-it diagram?]***

Removal or Containment of Contaminated Soil and Identification of Clean Soil.

In some instances, individuals may choose to take action to further contain, or to remove, contaminated soil even when BMPs may be an adequate response to elevated levels of arsenic and lead in soil. Individuals may also choose to bring in clean soil to create raised garden beds or to fill in children's play areas or other parts of the property. The chartering agencies should support these decisions by providing guidance on low-cost, effective, and practical solutions for containing contaminated soils under pavement, structures or in landscaping berms or other areas. The chartering agencies should also institute a "clean soil" certification process or other means of helping individuals locate sources of clean soil. ***[Review question: what, if any, guidance do you want to provide on how the agencies should do this?]***

Estimated Costs

[Placeholder for text on estimated costs.]

Implementation Considerations and Funding Recommendations

[Placeholder for text on implementation considerations and funding recommendations.]

7c. Commercial Areas

As discussed above, the Task Force is most concerned about exposure of children to arsenic and lead in soil. In general, commercial areas are not frequently used for play by young children,

and they tend to be covered with impervious surfaces such as buildings, parking lots, or other man-made and maintained cover such as landscaping bark or gravel. Where these types of surfaces are in place, the Task Force recommends that no further response actions are necessary to address area-wide soil contamination in commercial areas.

Estimated Costs

[Placeholder for text on estimated costs.]

Implementation Considerations and Funding Recommendations

[Placeholder for text on implementation considerations and funding recommendations.]

7d. Vacant Land

7e. Environmentally Sensitive Areas

8. Model Toxics Control Act (MTCA) Recommendations

- Alternative to traditional hazardous sites listing
- MTCA crosswalk recommendations

9. Recommendations on additional information needed ("parking lot") (1-2 pages)

- Information on health of Washington State residents (from "health letter")
- Other?

10. Institutional Priorities and Implementation Schedule

11. Summary / Conclusions (3-4 pages)

12. Appendices

- Maps and other information from the Nature & Extent Subgroup
- Chart identifying and evaluating the range of protective measures from the Protective Measures Subgroup (Existing: the protective measures tables)
- Recommendations summaries by agency?
- Other?